

ADDITIONAL NOTES ON THE ERIOCAULACEAE. IV

Harold N. Moldenke

In addition to the abbreviations for the names of herbaria listed by me in *Phytologia* 3: 179--180 (1949) the following are also employed in this installment: Gu = University of Georgia at Athens, Rg = J. T. Roig herbarium, Estacion Experimental Agronomica at Santiago de las Vegas, Cuba, S = Naturhistoriska Riksmuseet at Stockholm, Sm = Southern Methodist University at Dallas, Texas, and Wb = Rev. William Brown herbarium, Jesuit Tertianship, Auriesville, New York.

ERIOCAULON Gronov.

An as yet unidentified species of this genus is recorded by Luetzelburg, *Estud. Bot. do Nordeste* 3: 147 & 150 (1923) from São Marzello on the Rio Preto, Bahia, Brazil, where it is said to be frequent in carrasco and typical of the brejo. Herzog describes it as "forma petalorum tubo carnosio incrassato petallis mox solutis".

ERIOCAULON AFZELIANUM Wikstr.

Additional citations: SENEGAL: Monod 2 (F--photo, N--photo, Sg--photo, Z--photo).

ERIOCAULON AQUATILE Körn.

Additional citations: BRAZIL: Minas Geraes: J. E. Oliveira 114 [*Herb. Jard. Bot. Belo Horiz.* 32602] (II).

ERIOCAULON ARECHAVALETAE Herter

Literature references: Herter, *Flórmula* 44 [as E. latifolium Arech.]. 1930.

Additional citations: URUGUAY: Moldenke & Moldenke 19694 (S, F, Z).

ERIOCAULON BASSACENSE Moldenke

Citations: FRENCH INDOCHINA: Laos: Poillane 15668 (N--type).

ERIOCAULON BEAUVERDI Moldenke

Additional citations: BRAZIL: São Paulo: Moldenke & Moldenke 19643 (F, S).

ERIOCAULON BIFISTULOSUM Van Heurck & Muell.-Arg.

Additional citations: FRENCH WEST AFRICA: French Soudan: Monod s.n. [27-XI-45] (An, An). FRENCH GUINEA: Schnell 2141 (An, An).

ERIOCAULON BREVIFOLIUM Klotzsch

Additional citations: BRITISH GUIANA: Herb. Forest Dept. Br. Guian. WB.277 (N, Wb).

ERIOCAULON BREVIPEDUNCULATUM Merr.

The species has been collected at an altitude of 3680 m. in New Guinea.

Additional citations: NEW GUINEA: Papua: Brass 4365 (N), 4367 (N).

ERIOCAULON CINEREUM R. Br.

This species is recorded [as E. Sieboldianum Sieb. & Zucc.] from Mysore, India, by B. A. Razi in Journ. Mysore Univ. 7 (4): 66 (1946) and is described as a therophyte.

Additional citations: FRENCH INDOCHINA: Tonkin: Poilane 8057 (N), 8067 (N), 8069 (N), 8081 (N), 8086 (N), 8088 (N), 8093 bis (N), 8096 (N).

ERIOCAULON COLLINUM Hook. f.

This species is recorded from Mysore, India, by B. A. Razi in Journ. Mysore Univ. 7 (4): 77 (1946) and is called a therophyte according to Raunkiaer's classification of life-forms.

ERIOCAULON CONICUM (Fyson) C. E. C. Fisch.

This species is recorded [as "E. conicum Fisch."] from Mysore, India, by B. A. Razi in Journ. Mysore Univ. 7 (4): 77 (1946) and is described as a therophyte.

ERIOCAULON CONIFERUM Herzog

This species is recorded from Rio Preto (Abaixo d'Agua), and from Rio Grande, Bahia, by Luetzelburg in Estud. Bot. do Nordeste 3: 147 & 150 (1923) and is said to be typical of the brejo.

ERIOCAULON CRASSISCAPUM Bong.

Additional citations: BRAZIL: Minas Geraes: Magalhães Gomes 4301 (N, N); Mello Barreto 2553 [Herb. Jard. Bot. Belo Horiz. 10692] (N).

ERIOCAULON CUSPIDATUM Dalz.

This species is recorded from Mysore, India, by B. A. Razi in Journ. Mysore Univ. 7 (4): 77 (1946) and is described as a therophyte.

ERIOCAULON DECANGULARE var. LATIFOLIUM Chapm.

Additional citations: FLORIDA: Franklin Co.: Saurman s.n. [Apalachicola, 1867] (Pr).

ERIOCAULON DECIFLORUM Maxim.

Additional citations: MANCHUKUO: Komarov 339 (N).

ERIOCAULON DECIPIENS N. E. Br.

Synonymy: Eriocaulon decipiens (N. E. Br.) Th. Arwidsson, Bot. Notiser 1934: 84. 1934.

Arwidsson, in the reference cited above, maintains that Brown's original description of this species must be modified, but such emendation of a description is not justification for changing the accreditation of the binomial as noted above. Arwidsson states that the leaves of this species are about 8 cm. long, 6--7 mm. wide at the base, 4 mm. wide at the mid-point, acute, that the head is solitary and 1 cm. wide, and that the involucre is light. He records it from Nyasaland and Southern Rhodesia and states that it is closely related to E. Sonderianum Körn.

ERIOCAULON DESLANDESII Alv. Silv.

Additional citations: BRAZIL: Santa Catharina: Reitz 2985 (N).

ERIOCAULON DIANAE Fyson

This species is recorded from Mysore, India, by B. A. Razi in Journ. Mysore Univ. 7 (4): 77 (1946) and is called a therophyte according to Raunkiaer's classification of life-forms.

ERIOCAULON DIANAE var. LONGIBRACTEATUM Fyson

This variety is recorded from Mysore, India, by B. A. Razi in Journ. Mysore Univ. 7 (4): 77 [as "var. longibracteata"] (1946) and is described as a geophyte.

Additional citations: INDIA: Bombay: C. E. C. Fischer 4523 (F--photo, K, N, N--photo, Sg--photo, Z--photo).

ERIOCAULON DIANAE var. RICHARDIANUM Fyson

This variety is recorded from Mysore, India [as "var. Richardiana"] by B. A. Razi in Journ. Mysore Univ. 7 (4): 77 (1946) and is described as a geophyte.

Additional citations: INDIA: Madras: Herb. 9483 (F--photo, K, N, N--photo, Sg--photo, Z--photo).

ERIOCAULON DICTYOPHYLLUM Körn.

Additional citations: BRAZIL: Paraná: Hatschbach 1191 (N). São Paulo: Brade 12226 [Herb. Rio de Jan. 30344] (Ja, N).

ERIOCAULON DIMORPHOPETALUM Moldenke

Citations: VENEZUELA: Bolívar: Steyermark 59264 (N--type).

ERIOCAULON DREGEI Hochst.

According to Arwidsson in Bot. Notiser 1934: 83 (1934) this species has obtuse leaves, olivaceous involucreal bractlets, and

flowers that are 3 mm. long. He cites Drège 4101.

ERIOCAULON ECHINOSPERMUM C. Wright

Additional citations: CUBA: Pinar del Río: C. Wright 3738 (Pa--isotype).

ERIOCAULON ECHINULATUM Mart.

The species has been collected in swamps at the foot of the White Cloud Hills in Kwangtung.

Additional citations: CHINA: Kwangtung: T. Sampson s.n. [Canton] (Pa); Samson 958 [490] (D--824270). FRENCH INDOCHINA: Cambodia: Poillane 14017 (N). Laos: Poillane 15468, in part (N). Tonkin: Poillane 8085 (N).

ERIOCAULON EDWARDSII Fyson

The species has been collected at 600 feet elevation and distributed as "E. edwardsii".

Additional citations: INDIA: Orissa: Mooney 2905 (F--photo, K, N, W--photo, Sg--photo, Z--photo).

ERIOCAULON EHRENBURGIANUM Klotzsch

This species has been collected in black muck of swamps, springy bogs, wet bottoms, marshes, and wet places, including the steep slopes of barrancas at altitudes of 4500 to 6000 feet, blooming in January, February, July, August, and September. Standley describes it as abundant in marshlands in Guatemala. It has often been confused with E. Benthami Kunth and has even been mixed on the same sheet with E. microcephalum H.B.K. The heads are white. The Ehrenberg 57 at Pomona, cited below, is inscribed "Original, sehr wertvoll!"

Additional citations: MEXICO: Federal District: Reiche s.n. [XI.1912; Herb. Inst. Biol. Univ. Nac. Mex. 2598] (Me). Hidalgo: Pringle 8989 [Herb. Inst. Biol. Univ. Nac. Mex. 2607] (Cm, D--522842, Gg--155600, Me, Me, Me, Vt). Jalisco: Dudley Herb. 54390 (Du); Edw. Palmer 44 (D--824266, Pa); Pringle 2665 [Herb. Inst. Biol. Univ. Nac. Mex. 2597] (Me), 4033 [Herb. Inst. Biol. Univ. Nac. Mex. 2596] (Me, Me, Me, Ob--23882, Vt). México: Barkley, Rowell, & Paxson 629 (Au); C. A. Ehrenberg 57 [Herb. Inst. Biol. Univ. Nac. Mex. 2602] (Me--isotype, Me--isotype, N--isotype, Po--185872--isotype); J. G. Schaffner 226, in part (Cm). Michoacán: Barkley, Paxson, & Webster 2736 (N); Hitchcock & Stanford 7201 (Pl--130319, Po--266810, Se--53441, W--1309167); Leavenworth 659 (N). State undetermined: Aschenborn 531 (Br). GUATEMALA: Chimaltenango: Skutch 617 (Du--230756). El Quiché: P. C. Standley 62481 (N). Sacatepéquez: P. C. Standley 64692 (N).

ERIOCAULON EKMANII Ruhl.

Additional citations: CUBA: Pinar del Río: Moldenke & Mol-

denke 19873 (Es, N), 19874 (Es, Lg, N), 19925 (Es, Lg, N, Sm), 19928 (Es, N), 19934 (N); Moldenke, Moldenke, León, Alain, & Acuña 15263 (Es), 15264 (Es).

ERIOCAULON EPAPILLOSUM Ruhl.

The specimen from "Uberabinha Ufer" cited by Ruhland is from the state of Minas Geraes, Brazil.

Additional citations: BRAZIL: Minas Geraes: J. E. Oliveira 934 [Herb. Jard. Bot. Belo Horiz. 42431] (H).

ERIOCAULON FORMOSANUM Hayata

The species has been found in swamps at the foot of the White Cloud Hills in Kwangtung and has been confused with "E. truncatum Buch.-Ham."

Additional citations: CHINA: Kwangtung: Samson 256 [127] (D--824275). FORMOSA: Tanaka & Shimada 13574 (D--697328).

ERIOCAULON FULIGINOSUM C. Wright

The species has been collected in anthesis also in January, and has been mixed with E. melanocephalum Kunth.

Additional citations: BRITISH HONDURAS: Gentle 993 (D--722699, Gg--245655). CUBA: Las Villas: Combs 588 (D--659078); León & Cazafias 5910 (Ha), 5983 [Herb. Marie-Victorin 20584] (Vi). Oriente: Acuña 12379 (Es), s.n. [Herb. Roig 3643] (Rg); R. A. Howard 6019 (N, N, N); C. Wright 3238 (Pa). Pinar del Río: Acuña 10687 (Es), 14902 (Es); León & Alain 19431, in part (N), 19502 (N); Moldenke & Moldenke 19883 (Es, Lg, N), 19919 (N); Moldenke, Moldenke, León, Alain, & Acuña 15266 (Es), 15267 (Es); C. Wright 3239 (Pa--isotype), 3740 (Pa). Province undetermined: León, Victorin, & Alain 19626 (N); C. Wright 3739 (Pa)

ERIOCAULON GIBBOSUM Körn.

Körnische divided this species into two varieties: (1) var. brevifolium Körn., typified by Gardner 5275 and Lund s.n., and var. longifolium Körn., typified by Gardner 4333, Lund s.n., Riedel 2416, Vauthier s.n., and Weddell 2128. The first variety may be regarded as typical of the species and its cotypes are also cotypes of the species. The second variety I believe may also be reduced to synonymy here. The species is listed by Malme in his Phanerogamen 3: 7 (1933). It is recorded from Rio Preto, Goyaz, and São Bento dos Lagos, Bahia, by Luetzelburg, Estud. Bot. do Nordeste 3: 147 & 150 (1923) and is said to be typical of the brejo. On page 147 he lists it as "E. gibbosum var. beta longifolia" and on page 150 as "E. gibbosum var. longifolia". Herzog is responsible for the identifications in this work.

Additional citations: BRAZIL: Goyaz: Riedel 2416 (M). Rio de

Janeiro: G. Gardner 848 (T). State undetermined: G. Gardner 4384 (N).

ERIOCAULON GRACILE Mart.

Additional citations: INDIA: State undetermined: R. Wight 2367b (N). FRENCH INDOCHINA: Cambodia: Poilane 14357 (N).

ERIOCAULON GRAPHITINUM F. Muell. & Tate

Literature references: R. Tate, Trans. Roy. Soc. S. Austr. 19: 82. 1895.

This species was first collected by Tietkens on the Tietkens Expedition in the latitude of Engoordina on the Finke River in South Australia in the year 1889.

ERIOCAULON GREGATUM Körn.

The species has been collected at altitudes of 4500 to 5500 feet, and has been confused with E. achiton Körn.

Additional citations: INDIA: Assam: C. B. Clarke 18585a (F-photo, K, N--photo, Sg--photo, Z--photo). State undetermined: C. B. Clarke 18637b [Sohra] (F--photo, K, N--photo, Sg--photo, Z--photo).

ERIOCAULON GUADALAJARENSE Ruhl.

Additional citations: MEXICO: Jalisco: Pringle 1734 (Br--isotype, Cc--isotype, D--324271--isotype, Pa--isotype).

ERIOCAULON GUIANENSE Körn.

The species has been collected around pools of water in rocks, blooming in september, and has been confused with Paepalanthus Lamackii Kunth.

Additional citations: VENEZUELA: Amazonas: Steyermark 58518 (N). State undetermined: Lasser 146 [Llanos de Calabozo en Cunaga; Herb. Nac. Venez. 18470] (N, Ve). BRITISH GUIANA: C.B. Clarke s.n. [1897] (N).

ERIOCAULON HENRYANUM Ruhl.

The species has been collected in swampy meadows at altitudes of 9600 to 12,000 feet, blooming from May to October.

Additional citations: CHINA: Yunnan: Ducloux 308 (N); E. E. Maire 3524 (N); R. P. Maire 3419 (N); J. F. C. Rock 4587 (N), 5349 (N), 5459 (N), 5882 (N), 10704 (N), 24927 (Gg--236164). FRENCH INDOCHINA: Tonkin: Poilane 1322 (N).

ERIOCAULON HETERODOXUM Moldenke

This species has been collected on the muddy shore of the river at Mazaruni Station, British Guiana, on September 27, 1937, by N. Y. Sandwith, who describes it as having greenish-white or dirty-cream heads, 6 stamens, 3 styles, and the sepals

united with a split spathaceous sheath.

Additional citations: BRITISH GUIANA: N. Y. Sandwith 1603 (K).

ERIOCAULON HILDEBRANDTII Körn.

Additional citations: MADAGASCAR: Hildebrandt 3598 (F--photo of isotype, N--isotype, N--photo of isotype, Sg--photo of isotype, W--808233--isotype, Z--photo of isotype).

ERIOCAULON HONDOENSE Satake

Literature references: Satake, Bot. Mag. Tokyo 51: 288, fig. 3. 1937; Hara, Bot. Mag. Tokyo 53: 400. 1938. The first of these is the original description.

The species has been collected in marshy places near Shoya, blooming in late August to September, and is known from the districts of Kyushu, Honshu, and Yezo. It has also been collected in anthesis in July and October. The vernacular name "nippon-inunohige" is recorded by Satake. The species has been confused with E. Miquelianum Körn., but is stouter, with bigger and longer involucral bractlets. Hara records "Eriocaulon Miquelianum (non Koernicke) auct. Jap. pro parte" as a synonym.

Additional citations: JAPAN: Hokkaido: Maximowicz s.n. [1861] (C). Hondo: Ohwi s.n. [Mizoro, 26.X.1930] (Ms, N). Honshu: Y. Matsumura 6676 (N); Ohwi s.n. [26.X.1930] (N); Yushun s.n. [12-7-1905] (N).

ERIOCAULON HUMBOLDTII Kunth

This species is listed by Pittier as "Eriocaulon Holboldii" in his La Mesa de Guanipa, Ensayo de Fitografia 22 (1942); on page 30 of the same work he spells the binomial correctly and says the plant grows on the shore of Río Tigre near El Tigrito. The collection cited by Ruhland from "Raudal de Aturez" is from Delta Amacuro, Venezuela. The species has been collected at altitudes of from 80 to 1065 m., growing 35--40 cm. tall, with white flowers, blooming in March and November. The Steyermark 59043 collection, cited below, is mixed with some non-ericaulaceous plant; he records the common name "paja vinera".

Additional citations: COLOMBIA: Méta: Cuatrecasas 7835 (W--1774230). VENEZUELA: Amazonas: Ll. Williams 13432 (Ve). Anzoátegui: H. Pittier 14303 (Ve, W--1778563), 14764 (W--1833169). Bolívar: Lasser 1716 (N); G. G. Simpson 30 [Herb. Nac. Venez. 18467] (Ve, W--1775639); Steyermark 58549 (N), 59043 (F--1209389, N); Tamayo 2906 (N); Ll. Williams 12755 [Herb. Nac. Venez. 18468] (Ve, W--1800771). BRAZIL: Amazonas: Ule 7928 (N, W--1615022). Mattogrosso: J. T. Baldwin, Jr., 3043 (W--1834324).

ERIOCAULON HUMILE Moldenke

Additional citations: INDIA: Bombay: Blatter, Hallberg, &

McCann 28009, in part (N--type, Xa--isotype).

ERIOCAULON INDICUM Moldenke

Additional citations: INDIA: Bombay: Blatter, Hallberg, & McCann 28071 (N, Xa); Herb. Blatter 2566 (N, Xa); Santapau 891 (Xa), 2180 (N, Xa), 2924 (N--type, Xa--isotype), 4843 (N, Xa).

ERIOCAULON INSULARE Ruhl.

This species has been collected in anthesis in October and December. and has been confused with E. fuliginosum C. Wright and E. scirpoides Griseb.

Additional citations: CUBA: Pinar del Río: Ekman 17808 (Ha--isotype); León & Roca 6987 (Ha).

ERIOCAULON INTERMEDIUM Körn.

Additional citations: FRENCH INDOCHINA: Tonkin: Poillane 8089 (N).

ERIOCAULON INYANGENSE Arwidsson

Additional citations: SOUTHERN RHODESIA: Gilliland 85 (Rh); H. E. Hornby H.2388 [Govt. Herb. Salisbury 13417] (F--photo, N--photo, Rh, Rh, Sg--photo, Z--photo); Wild 1076 [Govt. Herb. Salisbury 14888] (Rh), 1162 [Govt. Herb. Salisbury 15100] (N, Rh).

ERIOCAULON KÖRNICKIANUM Van Heurck & Muell.-Arg.

Additional citations: OKLAHOMA: Pushtamaha Co.: E. J. Palmer 8320 (Gg--183013). TEXAS: Polk Co.: Tharp 42-6 (N), 42-7 (N, N).

ERIOCAULON KUNTHII Körn.

Additional citations: BRAZIL: Minas Geraes: Mexia 5745 (Gg--286189).

ERIOCAULON LACTEUM Rendle

Additional citations: SOUTHERN RHODESIA: Brain 9644 [Govt. Herb. Salisbury 10736] (Rh); Colville 72 [Govt. Herb. Salisbury 13894] (Rh); Corby 20 [Govt. Herb. Salisbury 20329] (F--photo, N--photo, Rh, Sg--photo, Z--photo); Dehn 342 [Govt. Herb. Salisbury 8363] (Rh); Gilliland 507 (Rh), 986 (Rh); Herb. Queen Victoria Memorial 7177 (N, Rh); Rattray 1371 [Govt. Herb. Salisbury 21185] (N, Rh); Wild 1081 [Govt. Herb. Salisbury 14893] (Rh).

ERIOCAULON LACUSTRE Ruhl.

The species has been confused with E. melanocephalum var. longipes Griseb.

Additional citations: CUBA: Pinar del Río: Ekman 17877 (Ha--

isotype).

ERIOCAULON LANCEOLATUM Miq.

Additional citations: INDIA: Bombay: W. A. Talbot 2947, in part (F--photo, K, N, N--photo, Sg--photo, Z--photo).

ERIOCAULON LANCEOLATUM var. PILOSUM Moldenke

Additional citations: INDIA: Bombay: Herb. Blatter 2567 (N, Ka), 2568 (N, Ka); Santapau 2182 (F--photo of type, N--isotype, N--photo of type, Sg--photo of type, Ka--type, Z--photo of type), 11845, in part (N, Ka); W. A. Talbot 2947, in part (F--photo, K, N--photo, Sg--photo, Z--photo).

ERIOCAULON LAOSENSE Moldenke

Citations: FRENCH INDOCHINA: Laos: Poillane 15468, in part (N--type).

ERIOCAULON LATIFOLIUM J. Sm.

Original publication: J. Sm. in Rees, Cycl. 13. 1809.

Additional citations: FRENCH GUINEA: Dalziel 8247 (F--photo, N--photo, Sg--photo, W--1272980, Z--photo); Schnell 2271 (An, F--photo, N--photo, Sg--photo, Z--photo).

ERIOCAULON LEPTOPHYLLUM Kunth

Literature references: Kunth, Enum. Pl. 3: 549. 1841; Steud., Syn. Pl. Cyp. 2: 270. 1855; Körn. in Mart., Fl. Bras. 3 (1): 494. 1842-71; Ruhl. in Engl., Pflanzenr. 4 (30): 57. 1903; Abbiatti, Bol. Soc. Argent. Bot. 1: 280--281. 1946; Abbiatti, Rev. Mus. La Plata, new ser., 6: 326--328, figs. 4 & 5. 1946.

Additional citations: BRAZIL: Paraná: Reiss s.n. [May 29, 1934] (N).

ERIOCAULON LEUCOMELAS Steud.

This species is recorded [as E. melaleucum Mart.] from Mysore, India, by B. A. Razi in Journ. Mysore Univ. 7 (4): 77 (1946) and is described as a therophyte. It has been collected at altitudes of 8000 feet.

Additional citations: INDIA: Madras: J. S. Gamble 12986 (F--photo, K, N, N--photo, Sg--photo, Z--photo).

ERIOCAULON LINEARE Small

Literature references: Eyles & Robertson, U. S. Pub. Health Bull. 286: 106. 1944.

Eyles and Robertson in the reference cited above state that this species is found mostly in Coastal Plain pinelands, but occasionally in acid swamps or ponds, in Florida, Alabama, and Georgia. They differentiate the species from E. compressum Lam. and E. decangulare L. by stating that in the two latter the

flower-heads are more than 10 mm. in diameter when mature and the scape is 10--14-ridged, while in E. lineare the flower-heads are less than 10 mm. in diameter when mature and the scapes are only 3--5-ridged. The species has been collected in bogs, shallow pinebarren ponds, on lake shores, and in wet mucky sandy strand of lakes, in anthesis from March to June and in August. Actual specific localities include New Smyrna, Keystone Heights, Palatka, Ensley, and Jackson Lake, Florida; Moultrie, Georgia; and near Hoot's Nursery, East Flat Rock, North Carolina. It has been confused with E. septangulare With., E. compressum Lam., E. flavidulum Michx., E. Ravenelii Chapm., and Lachnocaulon minus (Chapm.) Small.

Additional citations: NORTH CAROLINA: Henderson Co.: Blomquist & Correll 5142 (H--39953). GEORGIA: Baker Co.: Thorne 1581 (Gu--24156). Colquitt Co.: W. B. Baker s.n. [Moultrie, 4-23-38] (Gu--28431). Santa Rosa Co.: R. M. Harper 85 (Ba). County undetermined: A. Gray s.n. (Br). FLORIDA: Clay Co.: Murrill s.n. [Keystone Heights, 3/28/39] (Fl--31246). Escambia Co.: Goodale 69827 (H--65763). Leon Co.: Wiegand & Manning 681 (N, Po--216756). Putnam Co.: C. S. Williamson s.n. [Palatka, Apr.] (D--824274). Volusia Co.: H. C. Beardslee, Jr., 37 (St--24035), s.n. [New Smyrna, March 1925] (Ob--94484). ALABAMA: Baldwin Co.: R. M. Harper 22 (Ba, D--637048).

ERIOCAULON LINEARIFOLIUM Körn.

Additional citations: BRAZIL: Piahy: G. Gardner 2954 (N--isotype). BOLIVIA: Santa Cruz: Kuntze s.n. [Velasco, VII.92] (N).

ERIOCAULON LONGIFOLIUM Nees

The species has been collected at altitudes of 10--30 m., and has been confused with E. longifolium var. Wallichianum Burbidge, E. Wallichianum Mart., E. sexangulare L., and E. sexangulare var. longifolium Hook. f. -- in fact, the Burbidge specimen cited below was identified at various times with each of the first three of these names!

Additional citations: CEYLON: Alston 1069 (K); J. Fraser 55 (W--45306). FEDERATED MALAY STATES: Pahang: M. R. Henderson 24038 (N). STRAITS SETTLEMENTS: Singapore: Kuntze 6063 (N). BRITISH NORTH BORNEO: Burbidge s.n. (D--824285). SARAWAK: Mjoberg 211 (N). NEW GUINEA: Papua: Brass 5751 (N), 5752 (N). LOCALITY OF COLLECTION UNDESIGNATED: Herb. Hooker s.n. (K).

ERIOCAULON LONGIPEDUNCULATUM H. Lecomte

The species is listed by E. H. Walker in Contrib. U. S. Nat. Herb. 30 (1): 380. 1947.

ERIOCAULON LUZULAEFOLIUM Mart.

The type collection of this species was made by Gomez and Bruce in Silhet, Assam, and is Wallich 6071. The Philadelphia isotype has an incorrect label on it, reading "6069 Wall.", which is the number of the E. oryzetorum type collection. Another sheet in the same herbarium is mis-labeled as E. Brownianum Mart.

Additional citations: INDIA: Assam: H. Bruce s.n. [Wallich 6071] (D--324255--isotype); Gomez & Bruce s.n. [Wallich 6071] (C--isotype, T--isotype). East Bengal: W. Griffith 5590 (K). Orissa: W. S. Atkinson 21731 (K). State undetermined: Wallich s.n. (D--324269). BURMA: W. Griffith 5586 (K). LOCALITY OF COLLECTION UNDESIGNATED: Hooker s.n. [E. Indies] (C).

ERIOCAULON MAGNIFICUM Ruhl.

Additional citations: BRAZIL: São Paulo: Hermendorff 468 [Herb. Mus. Nac. Rio de Janeiro 47667] (Ja, N).

ERIOCAULON MAGNUM Abbiatti

Literature references: Abbiatti, Rev. Mus. La Plata Bot., n. s., 6: 323, pl. 1, figs. 2 & 3. 1946; Abbiatti, Bol. Soc. Argent. Bot. 1 (4): 230--281. 1946.

The species has been collected in pools in marshes, blooming in October.

Additional citations: ARGENTINA: Chaco: T. Meyer 2003 [Herb. Inst. Miguel Lillo 72633] (N, N), 3055 [Herb. Inst. Miguel Lillo 72632] (N, N).

ERIOCAULON MAJUSCULUM Ruhl.

The species has been recorded from Morro Acuf, alt. 2300 m., in the Serra dos Orgãos, Rio de Janeiro, by Luetzelburg in Estud. Bot. do Nordeste 3: 147 & 150 (1923) and is said to be typical of the Serra dos Orgãos.

Additional citations: BRAZIL: Minas Geraes: Mello Barreto 2529 [Herb. Jard. Bot. Belo Horiz. 8259] (N).

ERIOCAULON MARGARETAE Fyson

The species has been recorded from Mysore, India, by B. A. Razi in Journ. Mysore Univ. 7 (4): 77 (1946) and is described as a therophyte.

ERIOCAULON MARIAE Fyson

This species is known from the Pulney Hills of Madras, India.

ERIOCAULON MATOPENSE Rendle

Original description: Rendle, Journ. Linn. Soc. Lond. Bot. 37: 475--476. 1906.

The type of this species was collected by Gibbs in Southern

Rhodesia, It is said to be closely related to E. lacteum, but is a smaller plant with narrower leaves and without the sharp points to its bracts.

Additional citations: SOUTHERN RHODESIA: J. C. F. Hopkins s.n. [Govt. Herb. Salisbury 7727] (F--photo, N, N--photo, Rh, Sg--photo, Z--photo); Rattray 996 [Govt. Herb. Salisbury 19303] (Rh).

ERIOCAULON MEGAPOTAMICUM Malme

Literature references: Malme, Phanerogamen 3: 8. 1933.

The specimens from Povo Novo and from Pelotas, cited in literature, are both from Rio Grande do Sul, Brazil.

ERIOCAULON MEIKLEI Moldenke

Additional citations: SENEGAL: Monod 3 (An--isotype, F--photo of type, N--fragment of type, N--photo of type, P--type, Sg--photo of type, Z--photo of type).

ERIOCAULON MELANOCEPHALUM Kunth

The Killip specimen referred to by me under E. melanocephalum var. longipes Griseb. in my first installment of these Notes has now been seen by me and is cited below as typical E. melanocephalum. Genuine South American material has now been available to me and seems to be identical with the Cuban material, although the León & Alain specimen, cited below, surely is very similar to the so-called E. lacustre Ruhl. If the latter is really a valid species, my friend Killip may be correct in his contention that the Cuban material is distinct from the continental American material. The former would then be E. lacustre and the latter E. melanocephalum. Pennell found E. melanocephalum in streams in a llano at an altitude of 450 m. in Colombia and describes it as an aquatic herb with black or grayish-black inflorescences in September.

Additional citations: CUBA: Pinar del Río: Killip 32380 (N); León & Alain 19431, in part (Ha, N). Province undetermined: C. Wright 3240 (Pa). COLOMBIA: Méta: Pennell 1635 (N), 1637 (N).

VENEZUELA: Bolívar: Steyermark 59256 (F--1209390, N). FRENCH GUIANA: Collector undesignated s.n. [Cayenne, 1844] (Du). BRAZIL: Amazonas: Ule 8088 (N, W--1615041).

ERIOCAULON MELANOLEPIS Alv. Silv.

Additional citations: BRAZIL: Minas Geraes: Mello Barreto 4406 [Herb. Jard. Bot. Belo Horiz. 17496] (N).

ERIOCAULON MERRILLII Ruhl.

Literature references: E. D. Merr., Chron. Bot. 10: 210. 1946.

The species has been collected in anthesis in April, September, October, and December.

Additional citations: FRENCH INDOCHINA: Tonkin: Poillane 8059 (N), 8064 (N), 8090 (N), 8099 (N). PHILIPPINE ISLANDS: Luzon: M. Ramos s.n. [Herb. Philipp. Bur. Sci. 5544] (N); R. S. Williams 946 (N, N), 1004 (N). Mindanao: E. B. Copeland 1431 (N). Sibuyan: Elmer 12248 (Vt).

ERIOCAULON MESANTHEMOIDES Ruhl.

My friend, E. Milne-Redhead, in a letter to me dated July 8, 1947, says "We have not got the type of E. mesanthemoides, but I have selected a specimen from the type locality which is probably that species. I consider it to be conspecific with E. schimperii. I would refer you also to a specimen in the Arnold Arboretum collected by Linder (no. 2397) on Mt. Mikeno in the Virunga group [Ruanda & Urundi] and named E. volkensis Engl. var. mildbraedii Ruhl. Our sheet of it has been referred to E. mesanthemoides." The Stolz collection cited below has the habit of E. Schimperii, but its involucreal bractlets are perhaps different and the leaf-tips not so narrowed-cucullate as in that species; the third peduncle on this specimen is exerted 2 1/2 inches from the sheath. It was collected at an altitude of 1300 m.

Additional citations: BRITISH NYASALAND PROTECTORATE: Stolz 2098 (E--392181, N).

ERIOCAULON MEXICANUM Moldenke

Additional citations: MEXICO: Jalisco: Pringle 11202 (Cm--isotype).

ERIOCAULON MICROCEPHALUM H.B.K.

Literature references: F. L. Herrera, Sinops. Flora Cuzco 1: 170. 1941; R. Espinosa, Estud. Bot. Sur Ecuad. 1: 73. 1948; R. Espinosa, Estud. Bot. Sur Ecuad. 2: 25. 1949.

The André K.1737 cited by me in the first installment of these Notes as from an undetermined province in Ecuador is actually from Loja, Ecuador. Herrera, in the reference cited above, records the species from Paso de Tres Cruces, alt. 3800 m., Cuzco, and cites Pennell 13864, saying that the species is found in Mexico, Ecuador, and Peru (departments of Junín and Cajamarca). The species has been found in bogs, wet meadows, gravelly soil around mountain springs, forming dense cushions of narrow grass-like leaves 1 inch long or less in bogs in sunny exposures, and forming cushions in wet areas, at altitudes of 7500 to 11,500 feet. Balls describes it as having tufted habit, with stems to 1 or 1 1/4 inches tall, silvery leaves, and silver-gray round heads of flowers. Pennell and Summers describe the leaves as bright medium-green and the heads black, the roots deep-seated. Espinosa says "pequeñas rosetitas que forman almohadillas en lugares húmedos y pantan-

os del páramo". It has been collected in anthesis also in June and September. It has been mixed on the same sheet with E. Ehrenbergianum.

Additional citations: MEXICO: Federal District: Reiche s.n. [Herb. Inst. Biol. Univ. Nac. Mex. 2607] (Me). México: Balls 5041 (W--1793754); Pringle 6144 (Br, Cm, D--824272, Me, Me, Me, Vt), 7361 (Me); Reiche s.n. [Herb. Inst. Biol. Univ. Mex. 2606] (Me); J. G. Schaffner 226, in part (Cm). Tamaulipas: Harshberger 50 (D--824263). Veracruz: Balls 5495 (W--1793858). ECUADOR: Azuay: W. H. Camp E.465 (N), E.2086 (N), E.2582 (N). Carchi: Penland & Summers 903 (N). Loja: R. Espinosa 1403 (N), 2184 (N). Pichincha: W. H. Camp E.1681 (N). Province undetermined: Spruce 5862 (K).

ERIOCAULON MINUTUM Hook. f.

The species is recorded from Mysore, India, by B. A. Razi in Journ. Mysore Univ. 7 (4): 77 (1946), and is described as a therophyte.

ERIOCAULON MIQUELIANUM Körn.

This species was originally described by Körnicke in Miq., Ann. Mus. Bot. Lugd.-Bat. 3: 162 on the basis of a specimen collected by Buerger.

ERIOCAULON MISERRIMUM Ruhl.

Additional citations: ISLA DE PINOS: Carabia 1081 (Cr, N).

ERIOCAULON MISERUM Körn.

Additional citations: INDIA: Assam: C. B. Clarke 42963 (F--photo, K, N, N--photo, Sg--photo, Z--photo).

ERIOCAULON MISSIONUM Castell.

Literature references: Castellanos in Descole, Gen. Sp. Pl. Argent. Eriocaul. 88. 1945.

ERIOCAULON MITOPHYLLUM Hook. f.

Additional citations: PAKISTAN: East Bengal: W. Griffith 5578 (F--photo of type, K--type, N--isotype, N--photo of type, Sg--photo of type, Z--photo of type).

ERIOCAULON MODESTUM Kunth

My good friend, Dr. W. G. Herter, of Montevideo, is of the opinion that his no. 2110 [Herb. Herter 99864], a plant 1--2.5 dm. tall, with white flowers, collected on December 7, 1947, at Parque Plata, at an altitude of 3--4 m., dept. Canelones, represents the type collection of a new Uruguayan species which he has done me the honor of naming E. Moldenkei and which he says differs from E. modestum in having much more num-

erous roots which are filiform, scarcely 0.5 mm. in diameter, and twisted, and leaves that are narrowly linear-lanceolate, subrigid, acuminate, shiny, scarcely fenestrate, 2--2.5 cm. long, 2 mm. wide at the base. In E. modestum he says the roots are fewer in number, 1 mm. in diameter, and the leaves subtriangular, not shiny, 4--5 cm. long, 5--8 [mostly 6--8] mm. wide at the base, and very distinctly fenestrate. Unfortunately, after comparing a number of separate Uruguayan collections with undoubted E. modestum from Brazil, I am not yet convinced that the two plants are specifically distinct. For the time being, at least, I am calling all of them E. modestum. Rosen-gurttt has collected the Uruguayan plant in swamps (where he says it is frequent) at Arroyo Sarandi along the Río La Plata near Costa Azul in February 1942, and in wet sand (where he says it is also common) at Baffados de Olmos in March 1937 -- both localities being in dept. Canelones. Castellanos collected it in December 1946 at Playa Atlántida, also in Canelones.

Additional citations: BRAZIL: Mattogrosso: M. A. Chase 11802 (W--1495701). Minas Geraes: P. Clausen 63 (N), s.n. [Minas Geraes, 1845] (N, N); Miranda Ribeiro s.n. [Herb. Mus. Nac. Rio Janeiro 47750] (Ja); L. Netto s.n. [Herb. Rio de Janeiro 49129] (Ja); Widgren 821 (W--936270). Rio Grande do Sul: J. Vidal s.n. [Herb. Rio de Janeiro 36737] (Ja). URUGUAY: Castellanos s.n. [Herb. Inst. Miguel Lillo 15182] (N); Herter 2110 [Herb. Herter 99864] (N); Rosengurttt B.1213 (N), B.3900 (N).

ERIOCAULON MODESTUM f. RIGIDIFOLIUM Herzog

This form is recorded as "fa. rigidifolia" from Rio das Femeas, Goyaz, by Herzog in Luetzelburg, Estud. Bot. do Nordeste 3: 147 (1923) and as "rigidifolium" on p. 150 of the same work, and is said to be typical of the Brejo.

ERIOCAULON MODESTUM f. VIVIPARUM Herzog

This form is recorded (as "f. vivipara") from Rio Preto, Bahia, by Herzog in Luetzelburg, Estud. Bot. do Nordeste 3: 147 & 150 (1923), and is said to be typical of the Brejo.

ERIOCAULON MONODII Moldenke

Additional citations: SENEGAL: Monod 1 (An--isotype, N--type).

ERIOCAULON MUTATUM N. E. Br.

Additional citations: SOUTHERN RHODESIA: Allen & Kobbs 744 (Rh), s.n. [Govt. Herb. Salisbury 744] (Rh); Brain 4486 [Govt. Herb. Salisbury 10738] (F--photo, N--photo, Rh, Sg--photo, Z--photo); Corby 80 [Govt. Herb. Salisbury 20933] (Rh), 134 [Govt. Herb. Salisbury 21587] (Rh); F. Eyles 5759 (Rh); Gilliland 86 (Rh).

ERIOCAULON NEPALENSE Prescottt

This species has been confused in the past with E. quinquantulare L. and E. luzulaefolium Mart. It has been collected at an altitude of 7500 feet, in flower and fruit in October. R. R. Stewart notes on the Stocks & Law specimen cited below that the receptacles are glabrous.

Additional citations: INDIA: Assam: Hooker & Thomson s.n. [Mont. Khasia] (M). Bombay: Lesz 566 [Blatter Herb. 8388] (Xa); Stocks, Law, etc. s.n. [Malabar, &c.] (C). Madras: Saulière 71 (N). Punjab: Koelz 3032 (W--1607163), 10237 (N).

ERIOCAULON NILAGIRENSE Steud.

The species is recorded (as E. Brownianum var. nilagirense Fyson) from Mysore, India, by B. A. Razi in Journ. Mysore Univ. 7 (4): 77 (1946), and is described as a geophyte.

Additional citations: INDIA: Madras: Benbower 429 (Ob--17383); G. S. Gough s.n. (W--297368); Hohenacker 953 (W--145282). State undetermined: R. Wight 2859 (K).

ERIOCAULON NIPPONICUM Maxim.

This species has been confused in the past with E. Sieboldianum Steud., E. sikokianum Maxim., E. cinereum R. Br., and E. truncatum Hamilt. It has been collected in anthesis in August and October. Recorded common names are "itoinanohige" and "shiro-inunohige".

Additional citations: U.S.S.R.: Burrato-Mongolskaya: Bohn-hof 309 (N). CHINA: Kwangtung: W. T. Tsang 21681b (Ms). Province undetermined: E. Faber s.n. (N). JAPAN: Hondo: Ohwi s.n. [Mizoro, 26.X.1930] (Ms). Honshiu: Baker & Baker s.n. [Aug. 7, 1914] (Gg--105746), s.n. [9-2-14] (Gg--105745); Y. Matsumura 6215 (N); Yushun s.n. (N). Island undetermined: Herb. State Coll. Wash. 51148 (Pl).

ERIOCAULON ODORATUM Dalz.

The species has been recorded from Mysore, India, by B. A. Razi in Journ. Mysore Univ. 7 (4): 77 (1946), and is described as a therophyte.

Additional citations: INDIA: State undetermined: Stocks s.n. (K). FRENCH INDOCHINA: Cambodia: Poilane 13904 (N), 13921 (N). Laos: Poilane 16171 (N).

ERIOCAULON OLIVERI Fyson

This species is known thus far only from the Pulney Hills of Madras, India.

ERIOCAULON ORYZETORUM Mart.

The Philadelphia specimen cited below has a wrong label on it. reading "6071" and is mis-identified as E. luzulaefolium

Mart.

Additional citations: NEPAL: Wallich 6069 (D--824256, in part--isotype, M--isotype). FRENCH INDOCHINA: Tonkin: Poilane 8087 (N).

ERIOCAULON OVOIDEUM Britton & Small

Literature references: Alain, Contrib. Ocas. Mus. Hist. Nat. Coleg. La Salle 7: 47, 105, & 114. 1946.

On page 47 of the reference cited above the specific name is mis-spelled "evoideum" and it is stated that the species is restricted to the Sabana de los Indios, growing in white siliceous sand of the savannas. It blooms in February.

Additional citations: ISLA DE PINOS: León 17496 (N), 17511 (N); León & Seifríz 17496 (Ha).

ERIOCAULON PACHYPETALUM Hayata

The species is said to be an erect herb rare in rice terraces and retaining walls, blooming in December. It has been confused with E. sexangulare L. and E. cristatum Mart.

Additional citations: CHINA: Kwangtung: S. K. Lau 708 (N). Province undetermined: E. Faber s.n. (N). HAINAN ISLAND: W. T. Tsang 535 [Herb. Lingnan Univ. 16034] (N).

ERIOCAULON PANAMENSE Moldenke

The species has been collected at altitudes of from 1200 to 1500 m., blooming in March and July.

Additional citations: PANAMA: Chiriquí: Killip 3614 (W--1010409--isotype); Woodson & Schery 744 (N).

ERIOCAULON PARAGUAYENSE Körn.

Literature references: Malme, Phanerogamen 3: 7. 1933.

ERIOCAULON PARANENSE Moldenke

Additional citations: BRAZIL: Paraná: Tessmann 2751 [Herb. Mus. Parana. 2751] (N--type), 3720 [Herb. Mus. Parana. 3720] (N).

ERIOCAULON PARKERI B. L. Robinson

Literature references: Fernald, Rhodora 5: 175. 1903; Robinson & Fernald, Gray's Man., ed. 7, 261. 1908; Britton & Br., Illustr. Fl., ed. 2, 1: 454, fig. 1141. 1913; Rhodora 34: 39. 1932; Rhodora 42: 355--416, 419-498, & 503--521. 1940; Rhodora 43: 208--211. 1941; Rouleau, Inst. Bot. Univ. Montréal Contrib. 54: 179, 191, & 313. 1944; Tatnall, Fl. Del. 75. 1947; Ogden, Steinmetz, & Hyland, Bull. Josselyn Bot. Soc. 8: 20. 1948.

Ogden, Steinmetz, and Hyland in the reference cited above record this species from Cumberland, Hancock, Kennebec, Lincoln, Penobscot, and Sagadahoc Counties, Maine. Some specimens appear to be intermediate between this species and E. septangu-

lare With. Among such, all annotated by me as E. Parkeri, are Britton 24 from Sussex Co., Delaware, Carter s.n. from Gunpowder, Maryland, Fassett 157 from Sagadahoc Co., Maine, and Carter s.n. from Wicomico Co., Maryland; and, annotated by me as E. septangulare, Barnhart 1176 from Orange Co., New York, Canby s.n. from Wicomico Co., Maryland, and G. W. Wright s.n. and Herb. Columbia Univ. s.n. without locality of collection designated. Possibly these and the several other similar specimens mentioned below represent hybrids between the two species. Interspecific hybrids in the genus have been described from Japan. In this connection Dr. Fernald's new key for the differentiation of the two species given in Rhodora 43: 211 (1941) is of more than passing interest. The Blake 10964 collection made on mud flats of the Weweeantic River, is apparently a mixture of both E. Parkeri and E. septangulare, apparently indicating that the two species sometimes grow together. The Herb. Torrey Bot. Club s.n. from Manover, Massachusetts, also comprises both species. The Canby s.n. from Virginia, not only is a mixture but the part annotated as E. Parkeri is the intermediate pubescent form of the species. The A. P. Garber s.n. from the Magothy River in Maryland is a similar mixture and the part annotated as E. Parkeri is only slightly less hairy than the part that is undoubtedly E. septangulare. Proctor 3095 from Dorchester Co., Maryland, is also the white-hairy form, while Proctor 3096 from Caroline Co. is the typical form. Pennell 2587 from Fairfax Co., Virginia, is also the white-hairy form, as are Rousseau 22073 and Rouleau 1294 from Quebec and both Rolland-Germain 82 and s.n. from Ontario.

The species, which was named in honor of Charles F. Parker of Philadelphia, has been collected almost uniformly in tidal mud flats submerged at high tide, labels reading tidal marshes, brackish backwaters, muddy shores, muddy banks, gravelly tidal shores somewhat overlaid with mud, etc. One collection was made under shrubs at muddy tidal margin and one on the muddy bank of a millpond. It has been collected on the sandy shores of the Susquehanna River in Maryland, the banks of the Agawan River in Massachusetts and the Hudson River in New York, the Schuylkill and the Tuquan in Pennsylvania, in anthesis in August and September, in fruit in September. Specimens have been variously identified in herbaria as E. articulatum Morong, E. septangulare With., E. gnaphalodes Michx., and Paepalanthus flavidulus Kunth. The late Marie-Victorin collected it in association with Gentiana Victorinii in Quebec. The K. K. Mackenzie 7344 (H--51971) specimen at Duke University identified as this species is actually Scirpus debilis Pursh. The Heller & Halbach specimen cited below is labeled "The only station in the county" [Lancaster Co., Penna.]. Fernald & Long on the label of

their no. 13166 describe the plant as bright-green. The specific name is sometimes lower-cased.

Additional citations: CANADA: QUEBEC: Bellechasse Co.: Rousseau 22073 (Mb, Vi). Levis Co.: Rouleau 1294 (Mb, Mb). Montmorency Co.: Marie-Victorin, Rolland-Germain, & Meilleur 44387 (Mb). Portneuf Co.: Marie-Victorin, Rolland-Germain, & Jacques 33869 (Mb, Vi). Quebec Co.: Clausen & Trapido 2779 (Ba); Marie-Victorin 28146 (Mb, Vi); Michel s.n. [24 août 1933] (Mb). ONTARIO: Ottawa Co.: Rolland-Germain 82 [Herb. Marie-Victorin 13311] (Vi), s.n. [Herb. Marie-Victorin 3917] (Vi). MAINE: Penobscot Co.: Fernald & Long 13166 (Al, Vi). Sagadahoc Co.: Fassett 4271 (H--65759); Fernald & Long s.n. [Plant. Exsicc. Gray. 174] (Al, Au, Ba, Cm, Du--30363, Gg--105754, H, Pl--62441, We); A. H. Norton s.n. [August 12, 1923] (Se--3967). VERMONT: Franklin Co.: Muenschner, Manning, & Maguire 313 (Ba). MASSACHUSETTS: Plymouth Co.: Bacigalupi 2078 (Du--209009); S. F. Blake 10964, in part (Au, Gg--171090, Mb, Po--196391, in part); Herb. Torrey Bot. Club s.n. [Hanover, Mass.] (Tc). CONNECTICUT: Fairfield Co.: E. H. Eames 9474 (Al). NEW YORK: Albany Co.: H. D. House 24275 (Al). Columbia Co.: McVaugh 2958 (Al), 3807 (Al), 4459 (Al), 4469 (Al); Muenschner & Curtis 5600 (Al). Greene Co.: H. D. House 25128 (Al), 25193 (Al). Orange Co.: Muenschner & Curtis 5599 (Al). Rockland Co.: Muenschner & Curtis 5598 (Al). Ulster Co.: H. D. House 25069 (Al, Ba); Muenschner & Curtis 5603 (Al), 5606 (Al), 5606b (Al); Muenschner, Winne, & Isely 20694 (Pl--131988). NEW JERSEY: Burlington Co.: K. K. Mackenzie 5684 (H--52212). Camden Co.: Martindale s.n. [Camden, July 1875] (Je--207); C. F. Parker s.n. [Herb. Ill. Ind. Univ. 18384] (Ur); F. W. Pennell 12006 (Cm, Mb, N). Monmouth Co.: Edwards & Clausen 1419 (Ba); Gershoy 207 (Ob--61422). Ocean Co.: Clausen & Wilson 2345 (Ba). PENNSYLVANIA: Bucks Co.: Dreisbach 4394 (Cm), 4541 (Cm). Lancaster Co.: Heller & Halbach s.n. [mouth of the Tucquan, Sept. 12, 1891] (Ur). Philadelphia Co.: E. Durand s.n. [banks of the Schuylkill River, Philad.] (Po--186031). County undetermined: C. F. Parker s.n. [shore of the Delaware above Richmond, Pa., Sept. 18, '64] (Pr). DELAWARE: New Castle Co.: Tatnall & Commons s.n. [river shore below Hollyoak, 8.17.1896] (Cc). Sussex Co.: S. Brown s.n. [Sept. 21, 1907] (D--530232); Collector undesignated s.n. [Milford, 9/1/1892] (Cc); Leeds 2946 (D--740729); Van Pelt & Long s.n. [Milford, July 21, 1908] (D--533131). MARYLAND: Caroline Co.: Proctor 3096 (D--324252). Cecil Co.: S. F. Blake 9694 (Or--21268). Dorchester Co.: Proctor 3095 (D--324251). Harford Co.: C. S. Williamson s.n. [Havre de Grace, Sep. 1st 1906] (D--532920). Wicomico Co.: F. Brendel s.n. [Salisbury, Aug. 26, '67] (Ur); J. J. Carter s.n. [Salisbury, July 15, 1904] (D--

527397); Wherry & Pennell 12858 (D--728103). County undetermined: A. P. Garber s.n. [Mogothy River, Aug. '67] (D--568220, in part). DISTRICT OF COLUMBIA: C. T. Mohr s.n. [Sept. 14, 1882] (Du--90821); E. S. Steele s.n. [July 31, 1896] (Ob--23908), s.n. [August 28, 1896] (H--22971, Ob--23908). VIRGINIA: Arlington or Alexandria City County: Steele s.n. [Herb. Marie-Victorin 15518] (Vi). Charles City Co.: Fernald & Long 11282 (Ba). Fairfax Co.: F. W. Pennell 2587 (D--582416). James City Co.: Fernald & Long 10988 (Gg--289418, N). Nansemond Co.: Fernald & Long 11283 (H--66458). County undetermined: Canby s.n. (Du--11077, in part). LOCALITY OF COLLECTION UNDESIGNATED: Herb. Hapeman s.n. (St--3292).

ERIOCAULON PERPLEXUM Satake & Hara

Literature references: Satake & Hara, Bot. Mag. Tokyo 52: 400--401. 1938.

The above reference is the original publication of this binomial, proposed for the "Eriocaulon nipponicum" of Tatew., Veg. Apoi 119 & 131 (1928), of Nakai, Veg. Apoi 76 (1930), and of Miyabe & Kudo, Fl. Hokk. & Saghal. 3: 286 (1932). Hara s.n. [Aug. 26, 1933] is given as the type, and the common name of "yezo-inunohige" is recorded. The species is found in marshy places at the foot of Mt. Apoi. In appearance it is said to resemble E. nipponicum Maxim. and E. decemflorum Maxim., but differs from these by having connate sepals and longer styles and by the fact that dimerous and trimerous flowers are thoroughly mixed in each head.

ERIOCAULON PINARENSE Ruhl.

Additional citations: CUBA: Pinar del Río: Ekman 18769 (N--photo of type).

ERIOCAULON PLUMALE N. E. Br.

Additional citations: FRENCH GUINEA: Schnell 2154 (An, F--photo, N, N--photo, Sg--photo, Z--photo), 2195 (An).

ERIOCAULON POILANEI Moldenke

Citations: FRENCH INDOCHINA: Annam: Poilane 5600 (N--type).

ERIOCAULON POLYCEPHALUM Hook. f.

This species is recorded (as "E. longicuspis var. polycephala Fyson") from Mysore, India, by B. A. Razi in Journ. Mysore Univ. 7 (4): 77 (1946), and is described as a geophyte. The mis-spelling "E. longicuspis var. polycephala Fyson" occurs in herbaria. The species has been collected at 6000 feet elevation.

Additional citations: INDIA: Central Provinces: Duthie 10581 (K, N). Madras: E. Barnes B.12 (F--photo, K, N, N--photo,

Sg--photo, Z--photo); J. S. Gamble 12134 (K).

ERIOCAULON POROSUM Lesq.

Literature references: U. S. Geol. Surv. Ann. Rept. 1873: 396. 1874; Rep. U. S. Geol. Surv. Terr. 7: 106, pl. 16, figs. 2 & 2a. 1878.

This fossil species was described from an Eocene formation at Sand Creek, Denver, Denver Co., Colorado, but the specimen in the New York Botanical Garden fossil collection does not look like an Eriocaulon. Its leaves have too strong a midrib.

ERIOCAULON PRINGLEI S. Wats.

This species was based on Pringle 1533 from the base of the Sierra Madre Mountains in Chihuahua, Mexico, collected in September 1887. The Philadelphia specimen of Pringle 2018 is erroneously marked "isotype". The species is found in wet places on plains.

Additional citations: MEXICO: Chihuahua: Pringle 2018 (Br, Cc, Cm, D--824254, Es, Me, Pa, Vt).

ERIOCAULON PSEUDOCOMPRESSUM Ruhl.

The species has been confused with E. compressum Lam. It has been collected in anthesis in January. The León, Victorin, & Alain 19629, cited below, represents the terrestrial form of the species, while their no. 19630 represents the aquatic form.

Additional citations: CUBA: Pinar del Río: Acuña 10696 (Es), 10708 (Es), 14962 (Es); León & Alain 19629 (Ha); León, Victorin, & Alain 19629 (N), 19630 (N); Moldenke & Moldenke 19876 (Es, Lg, N), 19921 (Es, Lg, N); Moldenke, Moldenke, León, Alain, & Acuña 15262 (Es); C. Wright 3741 (Pa--isotype).

ERIOCAULON PTEROSEPALUM Herzog

Additional citations: BRAZIL: Amazonas: Luetzelburg 21052 [Herb. Mus. Nac. Rio Janeiro 47705] (Ja--cotype, N--cotype), 21053 [Herb. Mus. Nac. Rio Janeiro 47704] (Ja--cotype, N--cotype), 21056 [Herb. Mus. Nac. Rio Janeiro 47706] (Ja, N).

ERIOCAULON PTEROSPERMUM Hayata

Synonymy: Eriocaulon petrospermum Hayata ex Moldenke, Known Geogr. Distrib. Erioc. 25 & 38, sphalm. 1946.

Additional citations: FORMOSA: Odashima 13575 (D--752408).

ERIOCAULON QUINQUANGULARE L.

The species is recorded from Mysore, India, by B. A. Razi in Journ. Mysore Univ. 7 (4): 77 (1946), and is described as a therophyte. The R. Wight 2367 collection, cited below, is one of the cotypes of E. argenteum Mart.

Additional citations: PAKISTAN: East Bengal: W. Griffith

5585 (C). Northwest Provinces: Gammie 18734 (K). INDIA: Chota Nagpur: C. B. Clarke 20810 (K), 34351 (K). Province undetermined: C. B. Clarke 33787 (K); Haines 3596 [North Chanda] (K); Royle s.n. [Himalayas] (D--824286); R. Wight 2367 (M, N).

ERIOCAULON RAVENELII Chapm.

Literature references: Eyles & Robertson, U. S. Pub. Health Bull. 286: 106. 1944.

The species has been confused in herbaria was the genus Lachnocaulon, especially L. glabrum Körn., and the mis-spellings "E. Ravenelli", "E. Ravenellii", and "E. Ravinelii" occur. The species is found on prairies, in hammocks, and in low pine-lands, and has been collected in anthesis in November. The C. E. Smith 142 specimen cited below is marked "TYPE", apparently erroneously. The two Buswell specimens cited below are extremely immature.

Additional citations: SOUTH CAROLINA: Berkeley Co.: Ravenel s.n. [Santee Canal] (Cc, Pr). County undetermined: Ravenel s.n. [S. Car.] (Pa). FLORIDA: Dade Co.: Small & Carter 121 (D--570845), 654 (D--526717), 888 (Ur), 1148 (D--568223), s.n. [Jany. 14, 1907] (D--568224), s.n. [south of Cutler, January 14, 1909] (Bu, Fl--23551, H--51299). Gilchrist Co.: West & Arnold s.n. [Trenton, 5 Oct. 1940] (N). Hillsborough Co.: A. P. Garber s.n. [Tampa, Sept. 1877] (D--824239, in part, Pa, Vt). Lee Co.: Buswell s.n. [Sept. 1929] (Bu), s.n. [April 1930] (Bu); M. F. Baker s.n. [Alva, Nov. 30, 1917] (Fl--495); H. C. Beardslee s.n. [Nov. 10, 1917] (Ob--94489). Levy Co.: A. P. Garber s.n. [Nov. 1877] (Pa). Okeechobee Co.: Small, Britton, Britton, & DeWinkeler 9269 (N). County undetermined: A. W. Chapman s.n. [S. Florida] (Pa); C. E. Smith 142 (D--824253).

ERIOCAULON REGNELLII Moldenke

Additional citations: BRAZIL: Minas Geraes: Regnell III. 1740 (F--photo of type, N--fragment of type, N--photo of type, W--937199--type, Z--photo of type).

ERIOCAULON RITCHIEANUM Ruhl.

The species is recorded from Mysore, India, by B. A. Razi in Journ. Mysore Univ. 7 (4): 77 (1946), and is described as a therophyte.

Additional citations: INDIA: Madras: J. S. Gamble 20985 (F--photo, K, N, N--photo, Sg--photo, Z--photo).

ERIOCAULON ROBINSONII Moldenke

The species inhabits damp places on dunes.

Additional citations: FRENCH INDOCHINA: Arnani: Clemens & Clemens 3275 (D--656797, Gg--156735, N); Consigny A. 244 (N);

C. E. Robinson 1043 (It--isotype, N--type).

ERIOCAULON ROBUSTIUS (Maxim.) Mak.

Literature references: Steinberg, Fl. URSS 3: 497. 1935;
Hara, Bot. Mag. Tokyo 52: 401. 1938.

Synonyms: Eriocaulon robustium Makino, Journ. Jap. Bot. 3
(7): 26. 1926. Eriocaulon alpestre φ robustius Maxim. ex Mak.,
Bot. Mag. Tokyo 4: 174, nom. nud. 1890; Maxim., Diagn. Pl. Nov.
Asia 8: 25. 1893; Matsumura, Ind. Pl. Jap. 2 (1): 175. 1905;
Nakai, Bot. Mag. Tokyo 25: [220], fig. C. 1911.

The species has been found in marshy places, blooming in
September, and a common name is "hiroha-inunohige". Hara re-
cords the species from Kyushu, Shikoku, Honshu, Yezo, Korea,
Manchuria, and Ussuri. He says the smallest individual he has
observed was only 2 cm. tall.

Additional citations: JAPAN: Musashi: Herb. Sci. Coll. Imp.
Univ. s.n. [Oct.] (Vt).

ERIOCAULON ROBUSTO-BROWNIANUM Ruhl.

The species has been recorded from Mysore, India, by B. A.
Razi in Journ. Mysore Univ. 7 (4): 77 (1946), and is described
as a geophyte.

Additional citations: BURMA: Tenasserim: W. Griffith 5571
(F--photo, K, N, N--photo, Sg--photo, Z--photo).

ERIOCAULON ROBUSTUM Steud.

Additional citations: INDIA: Madras: Gardner s.n. (F--photo,
K, N--photo, Sg--photo, Z--photo); Hohenacker 1307, in part
(F--photo, K, N--photo, Sg--photo, Z--photo); Hooker f. & Thom-
son s.n. (F--photo, K, N, N--photo, Sg--photo, Z--photo).

ERIOCAULON ROCKII Moldenke

Citations: CHINA: Yunnan: J. F. C. Rock 10843 (N--type).

ERIOCAULON SANTAPAU Moldenke

Additional citations: INDIA: Bombay: Santapau & McCann 1290
(N--type, Xa--isotype). State undetermined: Kuntze s.n. [1875]
(N).

ERIOCAULON SCARIOSUM J. Sm.

Synonymy: Eriocaulon Smithii R. Br., Prodr. 1: 254. 1810.

The species is said to be common in ditches along roadsides,
by rivulets, the margins of streams, and in open scrub. The
Betche specimen cited below has very black heads.

Additional citations: AUSTRALIA: New South Wales: T. A.
Stephenson s.n. (M). Queensland: Betche s.n. [Atherton, 8.1901]
(D--518031, N); M. K. Clemens s.n. [Sunnybank, Aug. 5, '43]
(Or--49422); J. Shirley s.n. [near Brisbane] (N); C. T. White

7167 (H). State undetermined: Terrace 3245 (Gg--105731). BRIBIE ISLAND: M. K. Clemens s.n. [Apr. 20--30, 1944] (Or--49073, Or--49674). DOUBLE ISLAND: M. K. Clemens s.n. [October 16, 1946] (Or--55929).

ERIOCAULON SCHIEDEANUM Körn.

The species has been collected in wet hollows of rocky slopes at an altitude of 5000 feet, blooming in October. The specific name is often lower-cased. It is often distributed as E. Jaliscanum Watson.

Additional citations: MEXICO: Jalisco: Pringle 6146 [Herb. Inst. Biol. Univ. Nac. Mex. 2603] (Cc, Cm, D--824273, Gg--162420, Me, Me, Me, Po--185874, Vt), s.n. [near Guadalajara, 5 Nov. 1889] (Vt), s.n. [near Guadalajara, Oct. 7, 1891] (Vt).

ERIOCAULON SCHIMPERI Körn.

Synonymy: Eriocaulon congensense Moldenke, Phytologia 2: 218--219. 1947.

My friend, E. Milne-Redhead, in a letter to me dated 8 July 1947 says: "We have not got the type of E. mesanthemoides, but I have selected a specimen from the type locality which is probably that species. I consider it to be conspecific with E. schimperii. I would refer you also to a specimen in the Arnold Arboretum collected by Linder (no. 2397) on Mt. Mikenso in the Virunga group [Ruanda & Urundi] and named E. volkensii Engl. var. mildbraedii Ruhl. Our sheet of it has been referred to E. mesanthemoides. I send also a gathering from Behungi Swamp, Virunga Mts., one from Njombe in S. Tanganyika, and one from Nyasaland. Superficially all these seem to be very similar to Schimperi 1217, the type of E. schimperii Koern. ex Engl. which is also included." The Chapin 404 collection cited below is the type of E. congensense. The species has been collected in marshes among grassland on mountain summits at elevations of from 7250 to 8200 feet, blooming in March. The Lynes specimen cited below has 3 peduncles, each with binary heads.

Additional citations: ABYSSINIA: Schimperi 1217 (F--photo of type, K--type, N--fragment of type, N--photo of type, W--945562 --isotype, Z--photo of type). BELGIAN CONGO: Chapin 404 (N). RUANDA & URUNDI: Burt 2922 (K, N); D. H. Linder 2397 (G). TANGANYIKA TERRITORY: E. M. Bruce 723 (Br, K, N); Lynes 70 (K, N). BRITISH NYASALAND PROTECTORATE: Brass 17232 (N, N); McClounie 29 (K, N).

ERIOCAULON SCHIMPERI var. GIGAS Moldenke

Additional citations: KENYA: I. R. Dale 3397 (Br--type, F--photo of type, N--fragment of type, N--photo of type, Z--photo of type).